

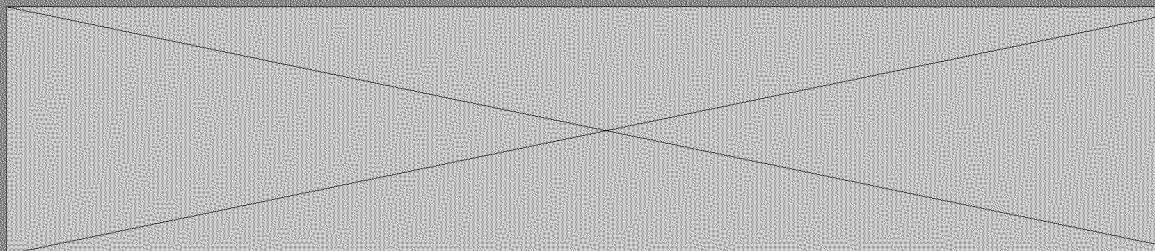
To: Wall, Dan[wall.dan@epa.gov]; Hanley, Jim[Hanley.James@epa.gov]
From: Russell, Carol
Sent: Mon 8/10/2015 2:18:52 PM
Subject: FW: MSI responds to Gold King Spill

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From: Hutchinson, Marcella
Sent: Monday, August 10, 2015 7:36 AM
To: Miullo, Nat; Russell, Carol; Isment, Peter
Cc: Faulk, Libby; McComb, Martin
Subject: FW: MSI responds to Gold King Spill

Just FYI- If you have not heard of them, they are a well-respected source of science in the Animas and the for other watersheds groups in the San Juans.

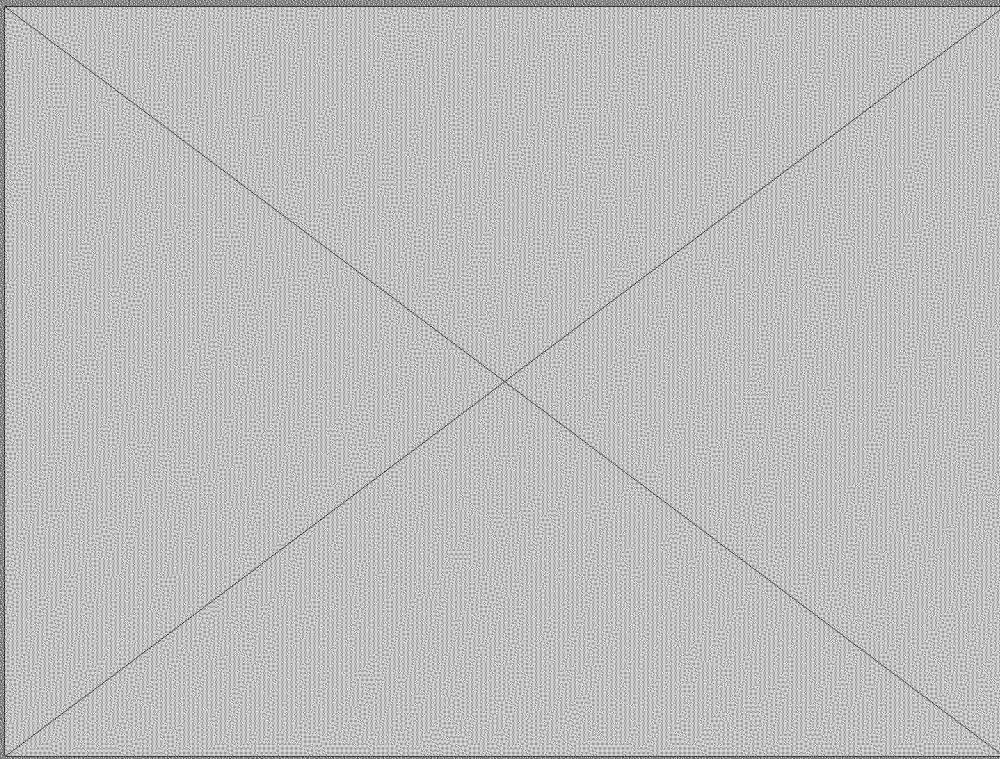
From: Mountain Studies Institute [mailto:info=mountainstudies.org@mail183.wdc02.mcdlv.net]
On Behalf Of Mountain Studies Institute
Sent: Saturday, August 08, 2015 7:48 PM
To: Hutchinson, Marcella
Subject: MSI responds to Gold King Spill

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Early signs good for Animas River biology:

Macro-invertebrates hanging on 20-hours after spill



MSI's Scott

Roberts collects invertebrates from the Animas River.

Twenty hours after exposure to a plume of acid mine drainage the small insects that inhabit the Animas River—macro invertebrates—are still hanging on. Mountain Studies Institute (MSI) staff stepped up to study the water quality and aquatic life in the Animas River as the one million gallons of wastewater from the Gold King mine was heading towards Durango, Colorado.

Macroinvertebrates are excellent indicators of water quality and stream health. They have a wide range of eating habits, life spans, and tolerances to pollution. Due to their small size and habits, they have limited mobility. Unlike fish, they cannot swim away when disaster strikes or seek refuge in other streams. More than just indicators, macro invertebrates are the base for the food chain that supports all other aquatic life in the Animas River.

MSI's preliminary results indicate that dominant benthic macroinvertebrate taxa in the Durango stretch of the Animas River survived the first twenty hours of exposure to the slug of water containing sediment and heavy metals from the Gold King mine.

MSI staff raced to collect data from multiple sites in the Durango area before polluted water arrived in the city limits. They established monitoring points at 32nd Street Bridge and near 15th Street collecting macro invertebrates before the plume arrived and 20 hours afterwards. MSI staff have historic data at the 32nd Street Bridge site that will enable them to compare this event with the long-term status and trends of the river.

"As soon as we heard about the release we began sampling and testing for water quality and invertebrates. We continued to take water quality samples every one-two hours as the release hit downtown" says Aaron Kimple, Program Director of Water Quality and

Forest Health.

"We do not yet know how less dominant and larger sized taxa fared, such as *Pteronarcys* stonefly" cautions Roberts INTRODUCE HIM, as the larger invertebrates are harder to collect. Full analysis of macro invertebrate community composition are underway.

MSI's findings mirror the Colorado Department of Parks and Wildlife's (CPW) results that fish have mostly survived the first 20 hours as well. CPW are monitoring fish in cages to see if the exposure to the slug of toxic sediment would kill the fish. However, the ability for fish to sustain after the plume of water has passed depends on their ability to find food—the insects—and to sustain any potential toxic metals that have been absorbed through their gills and skin.

"Continued monitoring may reveal substantial impacts to aquatic life over a longer period of time, but it is good news that widespread acute mortality did not immediately occur" says Roberts.

"There are two big picture items now as the plume passes through. First, we need to keep our eye on the long-term effects to the environment. The sediments that are being deposited on the bottom of the river will have an extended impact on aquatic life and the river" says Marcie Demmy Bidwell, MSI's Director. "The second is to stay dedicated to working together to respond, understand the effects, and address the issue in the long run."

Additional resources and updates can be found at MSI's website and social media. Mountain Studies Institute on Facebook [https://www.facebook.com/mountainstudiesinstitute](#), check out our website at [www.mountainstudies.org](#), or contact Aaron Kimple at aaron@mountainstudies.org or (970)387-5161.

La Plata County has set up a call center for the public. Call 970-385-8700. The EPA has set up a website about the Gold King Mine incident. Visit it at www.epaosc.org/GoldKingMine.

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